SO-QSFP28- SWDM4

QSFP28, 100G Ethernet SWDM4, MM, 850/880/910/940nm, 150m, 1.8dB, LC

OVERVIEW

The SO-QSFP28-SWDM4 is a QSFP28 form-factor transceiver for 100Gbps Ethernet applications. It is intended for use in inter- and intra-connect applications within and between data centers between switches, routers, storage equipment etc. The transceiver is based on the SWDM4 industry standard having the target to enable existing 10Gbps MultiMode fiber-pair infrastructure to be re-used for 40Gbps and 100Gbps without replacing it with SM fiber or ribbon fiber.

SO-QSFP28-SWDM4 has an optical performance enabling distances of up to 150m over a MultiMode (MM) fiber-pair cable. Forward Error Correction (FEC) is required to be implemented by the host to ensure reliable system operation. The FEC type shall be as defined in IEEE802.3bj, i.e. Reed Solomon RS(528,514). The optical parameters will provide a bit error ratio (BER) of 5 x 10^{-5}. FEC will render in the required BER of better than 1 x 10^{-12}.

SO-QSFP28-SWDM4 uses four channels/lanes in the 850-940nm region @ 25.78Gbps to transport the Ethernet signal. Digital diagnostics functions (DDM) are available via an I2C interface, as specified by the QSFP28 MSA.

TECHNICAL DATA

Parameter	Value
Technology	Grey QSFP28
Transmission media	MM (2x LC)
Typical reach	75m@OM3, 100m@OM4, 150m@OM5
Nominal wavelength	850nm
	880nm
	910nm
	940nm
Interface standards	100GBASE-SWDM4
Bit rate support	103.12Gbps [1]
	25.78 Gbps [2]
Protocol support	100GbE
Power budget	0 – 1.9dB@OM5, 1.8dB@OM4, 1.7dB@OM3
Power consumption	< 3.5W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

[1] Aggregated line rate 100GbE

[2] Per lane

[3] Average power

[4] Specified at BER 5x10^{-5}, PRBS 2^{31}-1

Safety/regulatory compliance:
TUV/UL/FDA (contact Smartoptics for latest certification information)
RoHS compliance

Parameter	Value
Transmitter data:	
Output power, per lane	Min: -7.5dBm [3]
	Max: +2.0Bm [3]
Transmit wavelength	844 – 858nm
	874 – 888nm
	904 – 918nm
	934 – 948nm
Receiver data:	
Minimum input power, per lane	-9.4dBm [3] [4]
Overload (max power), per lane	+2.4dBm [3] [4]
Wavelength range	844 – 858nm
	874 – 888nm
	904 – 918nm
	934 – 948nm
LOS Assert	Min -30dBm
LOS De-assert	Max -11dBm
LOS Hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	QSFP28 MSA

Power budget will vary depending on fiber type.

See 100G-SWDM4 MSA for details.

ORDERING INFORMATION

Ordering number	Description
SO-QSFP28-SWDM4	QSFP28, 100G Ethernet SWDM4, MM, 850/880/910/940nm, 150m, 1.8dB, LC

GENERAL DEFINITIONS

Parameter	Description
Technology	Grey; Transceiver type for non-WDM applications. Electrical or optical. CWDM; Transceiver type for CWDM applications using G.694.2 channel grid. DWDM; Transceiver type for DWDM applications using G.694.1 channel grid. BiDi; Transceiver pair using two different wavelength channels operating on a single-fiber. DAC: Direct Attach Cable. Electrical cable with attached connectors. AOC: Active Optical Cable. Optical cable with attached connectors.
Transmission Media	Type of fiber, e.g. Multimode (MM) or Singlemode (SM). Number of and connector type within brackets (e.g. 2x LC, 1x MPO).
Typical reach	Nominal distance performance based on typical fiber dispersion, fiber loss and power budget properties, i.e. w/o dispersion compensation and optical amplification. Actual distance is dependent on actual optical path loss and dispersion properties.
Bit rate range	Supported bit rate range in Gigabit or Megabit per second (Gbps or Mbps).
Protocols	Protocols within supported bit rate range.
Nominal wavelength	Typical wavelength(s) from transmitter.
Interface standards	Referenced interface standards or MSA's, e.g. IEEE 802.3 standard for 10GbE services or 100G 4WDM-10 etc.
Power budget	Min and max power budget between Transmitter and Receiver w/o optical path penalties.
Dispersion tolerance/penalty	Maximum amount of tolerated dispersion and required reduction of power budget to maintain stipulated Bit Error Rate (BER) and at a given bit rate.
Temperature range	Max operating case temperature range. Standard temperature range (C-temp): 0°C to +70°C (32°F to +158°F) Extended temperature range (E-temp): typically -20°C to +75°C (-4°F to +167°F) Industrial temperature range (I-temp): -40°C to +85°C (-40°F to +185°F)
Power consumption	Worst case power consumption. Will vary over temperature.
Transmitter Output power	Average output power. Provided in min and max values.
Receiver minimum input power	Minimum average input power at specified BER, normally $1E^{-12}$. Note that some protocols require FEC to achieve sufficient BER.
Receiver max input power	Maximum average input power giving a BER, normally $1E^{-12}$.
DDM	Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.